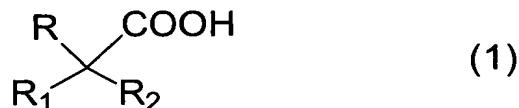


Claims

1. A process for preparing a nitrile compound, a carboxylic acid compound or a carboxylic acid ester compound
 5 represented by the formula (2):



wherein R represents a cyano group, a carboxyl group or an ester group, R¹ and R² each represent a group which does not participate in the reaction, each of
 10 which may have a substituent(s), incidentally, R¹ and R² may be bonded to each other to form a ring, which comprises subjecting an acetic acid compound represented by the formula (1):



15 wherein R, R¹ and R² have the same meanings as defined above,
 to decarboxylation in the presence of a metal catalyst.
 2. The process for preparing a nitrile compound, a carboxylic acid compound or a carboxylic acid ester compound
 20 according to Claim 1, wherein the metal catalyst is a catalyst which contains at least one metal selected from the group consisting of copper, iron, nickel and zinc.
 3. The process for preparing a nitrile compound, a carboxylic acid compound or a carboxylic acid ester compound
 25 according to Claim 1, wherein the decarboxylation is carried out in a solvent.
 4. The process for preparing a nitrile compound, a carboxylic acid compound or a carboxylic acid ester compound according to Claim 3, wherein the solvent is a tertiary
 30 amine, a pyridine, an amide, a sulfoxide, or a mixed solvent of any one of the above solvents and an aromatic hydrocarbon or an acetic acid ester.

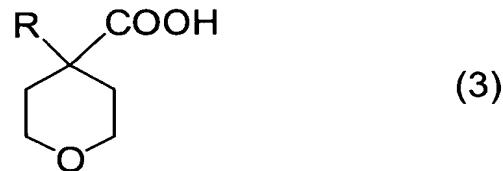
5. The process for preparing a nitrile compound, a carbo-
xylic acid compound or a carboxylic acid ester compound
according to Claim 1, wherein a temperature of the decarbo-
xylation is 50 to 150°C.

5 6. A process for preparing a 4-substituted tetrahydropyran
represented by the formula (4) :



wherein R represents a cyano group, a carboxyl group
or an ester group,

10 which comprises subjecting a 4-substituted tetrahydropyran-
4-carboxylic acid represented by the formula (3) :



wherein R has the same meaning as defined above,
to decarboxylation in the presence of a metal catalyst.

15 7. The process for preparing a 4-substituted tetrahydropyran according to Claim 6, wherein the metal catalyst is a catalyst containing at least one metal selected from the group consisting of copper, iron, nickel and zinc.

8. The process for preparing a 4-substituted tetrahydropyran according to Claim 7, wherein the decarboxylation is carried out in a solvent.

20 9. The process for preparing a 4-substituted tetrahydropyran according to Claim 8, wherein the solvent is a tertiary amine, a pyridine, an amide, a sulfoxide, or a mixed solvent of any one of the above solvents and an aromatic hydrocarbon or an acetic acid ester.

25 10. The process for preparing a 4-substituted tetrahydropyran according to Claim 6, wherein a temperature of the decarboxylation is 50 to 150°C.

30 11. A process for preparing a 4-substituted tetrahydropyran

which comprises

(A) a cyclization step in which bis(2-halogenoethyl)ether represented by the formula (5) :



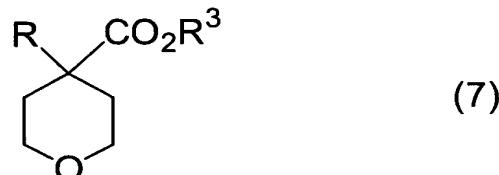
5 wherein X represents a halogen atom,

and a 2-substituted acetic acid ester represented by the formula (6) :



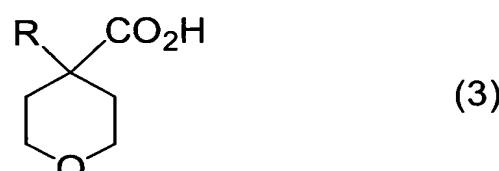
10 wherein R represents a cyano group, a carboxyl group or an ester group, and R³ represents a hydrocarbon group,

are reacted in the presence of a base in an organic solvent to prepare a mixture of a 4-substituted tetrahydropyran-4-carboxylic acid ester represented by the formula (7) :



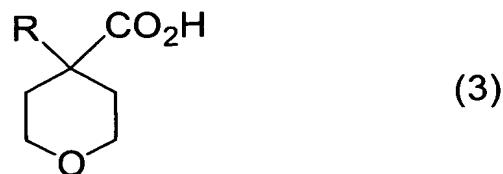
15 wherein R and R³ have the same meanings as defined above,

and a 4-substituted tetrahydropyran-4-carboxylic acid represented by the formula (3) :



20 wherein R has the same meaning as defined above,
 (B) then, a hydrolysis step in which the above-mentioned mixture is hydrolyzed to prepare a 4-substituted tetrahydropyran-4-carboxylic acid represented by the formula (3) :

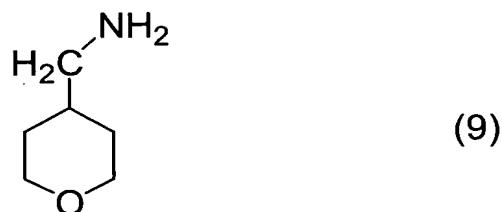
25 (3) :



wherein R has the same meaning as defined above,
 (C) further, a decarboxylation step in which the 4-substituted tetrahydropyran-4-carboxylic acid is subjected to
 5 decarboxylation in the presence of a metal catalyst to
 prepare a 4-substituted tetrahydropyran represented by the
 formula (4) :



wherein R has the same meaning as defined above.
 10 12. A process for preparing a 4-aminomethyltetrahydropyran
 and an acid salt thereof represented by the following
 formula (9) :



which comprises reacting a 4-cyanotetrahydropyran repre-
 15 sented by the following formula (8) :



with hydrogen in the presence of Raney nickel, and in a
 solvent containing ammonia.

13. The process for preparing a 4-aminomethyltetrahydro-
 20 pyran and an acid salt thereof according to Claim 12,
 wherein the solvent is an alcohol.

14. The process for preparing a 4-aminomethyltetrahydro-
 pyran and an acid salt thereof according to Claim 12,

wherein a post treatment of the reaction mixture is carried out after completion of the reaction by using an amine.